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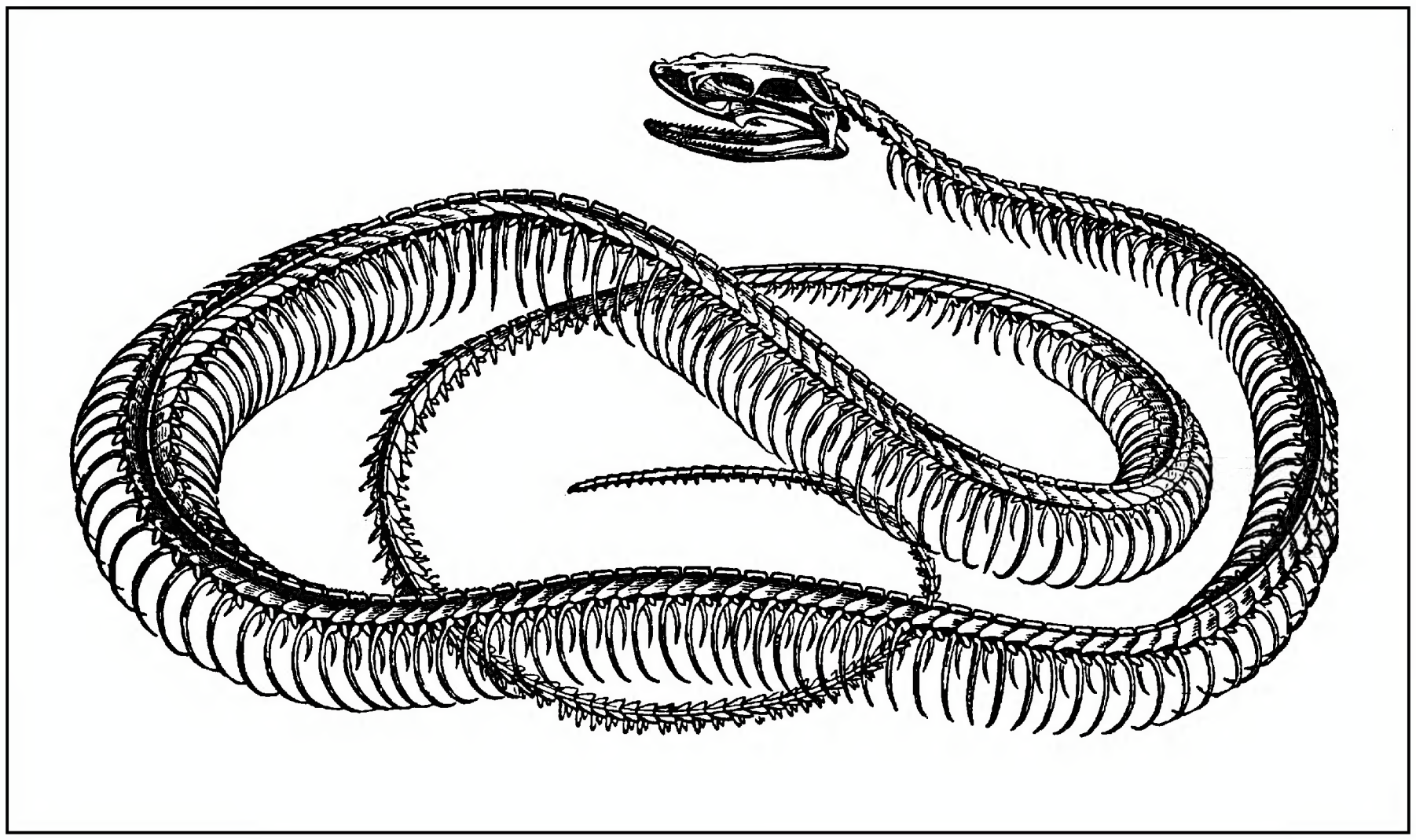

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Temperature Influence on Red-eyed Treefrog (*Agalychnis callidryas*) Developmental Success and Metamorph Physical Condition

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Temperature-dependent sex determination has been well documented in reptiles (Zug, 1993), but little work has been done to determine whether incubation temperature influences physical condition of neonates. An exception to this is Shine (1994) who identified a correlation between neonate fitness and the temperature at which eggs of an Australian temperate zone skink were incubated. Skink body size, tail length and running speed varied among incubation groups and could be associated with hatchling physical condition and ability to escape predation.

It is of particular interest to determine if the phenotype of a tropical species can be influenced by the temperature at which embryos develop. Tropical temperatures tend to fluctuate less than those in temperate zones, and therefore tropical species might have narrower tolerances for fluctuations in ambient temperatures during embryonic development.

In this study, we elected to use the tropical red-eyed treefrog, *Agalychnis callidryas*, to test for effects of temperature on embryonic development and subsequent physical condition of metamorphs.

Four clutches of *Agalychnis callidryas* eggs were obtained from the National Aquarium in Baltimore. Clutches were subdivided such that each treatment group contained an approximately equal number of eggs from each clutch. Eggs and subsequent larvae were incubated in Styrofoam chambers with lids made of ultraviolet-transparent plexiglass that permitted the eggs/larvae exposure to UV radiation from the Vita-Lite® fluorescent lighting (12L:12D) positioned approximately 0.5 m above the chambers. Within the chambers, small plastic aquaria containing the eggs/larvae were supported over 11-inch-wide heat tape by eggcrate diffuser. Temperature within each chamber was controlled by Microclimate® thermostats and maintained within $\pm 1°C$ of the set temperature.

Temperature treatments for egg incubation were 24, 27 and 30°C. After hatching, tadpoles were maintained at their respective temperatures and fed TetraMin® Flake Food three times daily until they left the water and reabsorbed their tails.

Time to hatching and time to complete metamorphosis were recorded for individuals within each group. Snout–vent length (SVL) was measured on day 17 and day 29 of larval development. At complete metamorphosis (total reabsorption of the tail), the following data were collected: SVL, body mass and tibiofibula length. Between three and five days after metamorphosis, "jump distance," used as an indicator of physical condition, was determined as the average distance of five jumps made by each frog in response to gentle prodding. Mortality variation among temperature treatments was tested for using the G-test. Analysis of variance procedures tested for differences among temperature treatments and Sheffe's test was used as a post-hoc test to determine where variation existed if ANOVAs were significant. Variations were deemed significant at $P \leq 0.05$.

Time to hatching was 5–6 days for eggs at 27 and 30°C, and slightly longer for eggs at 24°C (6–7 days). Mortality was negligible by day 17 of larval development and not significantly different among temperature treatments ($G = 4.3$; $df = 2$; $P > 0.05$) (Table 1). Variation in tadpole SVL among temperature treatments was tested for using ANOVA and was significant ($F_{2,107} = 12.4$; $P < 0.001$). Sheffe's test indicated the mean for the 24°C group was lower than the mean for both the 27 and 30°C groups; however, SVL did not differ between the 27 and 30°C treatments. By day 29 of development, mortality had increased (based on the number of initial larvae) but did not vary among treatment groups ($G = 2.1$; $df = 2$; $P > 0.05$) (Table 1). At day 29, ANOVA again indicated SVL variation among temperature treatments ($F_{2,93} = 14.4$; $P < 0.001$). Sheffe's test showed tadpoles at 27°C had a longer SVL than those in the other two treatment groups, but SVL did not differ between the 24 and 30°C groups.

Four tadpoles at 27°C were the first individuals to complete metamorphosis (39 days after eggs were oviposited). All tadpoles at 27°C that completed metamorphosis did so within a 17-day period. In contrast, tadpoles in the 24°C group were the last to initiate metamorphosis, with the first frog metamorphosing 46 days after eggs were laid. However, all tadpoles at 24°C transformed within a shorter time period (11

Table 1. Development of *Agalychnis callidryas* incubated at 24, 27 and 30°C. Snout–vent length (SVL) and mass are shown as mean ± SE.

Incubation Temperature	Initial no. of eggs	No. of eggs hatched	Larvae				Metamorphs		
			17 days		29 days				
			N	SVL (mm)	N	SVL (mm)	N	SVL (mm)	Mass (g)
24°C	56	52	52	7.6 ± 1.1	42	11.1 ± 1.4	38	20.4 ± 1.1	0.56 ± 0.10
27°C	55	34	33	9.0 ± 1.7	29	13.7 ± 3.0	25	20.6 ± 1.2	0.66 ± 0.14
30°C	58	27	25	8.6 ± 1.4	25	11.0 ± 2.3	3	21.0 ± 0.5	0.60 ± 0.26

days). Only three frogs completed metamorphosis at 30°C. Figure 1 illustrates the incidence of complete metamorphosis for frogs at the three incubation temperatures.

Based on the initial number of tadpoles at the start of larval development, the percentages of tadpoles that completed metamorphosis at each temperature were 73.1% at 24°C, 73.5% at 27°C and 11.1% at 30°C. Mortality was high for tadpoles at 30°C in the latter stages of development (between day 29 and metamorphosis) (Table 1) and there was significant variation in mortality among groups during this period ($G = 34.1$; $df = 2$; $P < 0.005$). The 30°C treatment also resulted in the development of spindly legs and kinked vertebral columns in late-stage tadpoles. No such anomalies were observed in the other two treatment groups. No variation was evident in SVL or in tibiofibular length among temperature treatments at metamorphosis ($F_{2,63} = 0.5$; $P = 0.606$ and $F_{2,63} = 0.25$; $P = 0.776$, respectively). Variation did exist for mass of metamorphosed frogs ($F_{2,63} = 4.5$; $P = 0.015$), with frogs at 27°C demonstrating the greatest mass (Table 2). Mass, adjusted for SVL, also varied among treatments ($F_{2,63} = 5.30$; $P = 0.007$).

Only one frog from the 30°C group survived to the time jump distances were measured; therefore, jump distance comparison (as a means to assess physical condition) was made only between frogs from the 24 and 27°C treatments. Average raw jump distances did not vary between the 24 and 27°C groups ($F_{1,49} < 0.1$; $P = 0.949$). However, because body mass at metamorphosis varied among groups, jump distances were divided by body mass. Adjusted distances, subjected to ANOVA, showed significant variation ($F_{1,49} = 9.1$; $P = 0.004$) with larger scores for the 24°C group. Adjusted jump distances were 35.0 mm/g ($N = 28$; $SE = 1.3$ mm/g) for the 24°C group and 29.2 mm/g ($N = 23$; $SE = 1.4$ mm/g) for the 27°C group, indicating frogs that developed at 24°C were stronger relative to body size (better physical condition) than frogs incubated at 27°C.

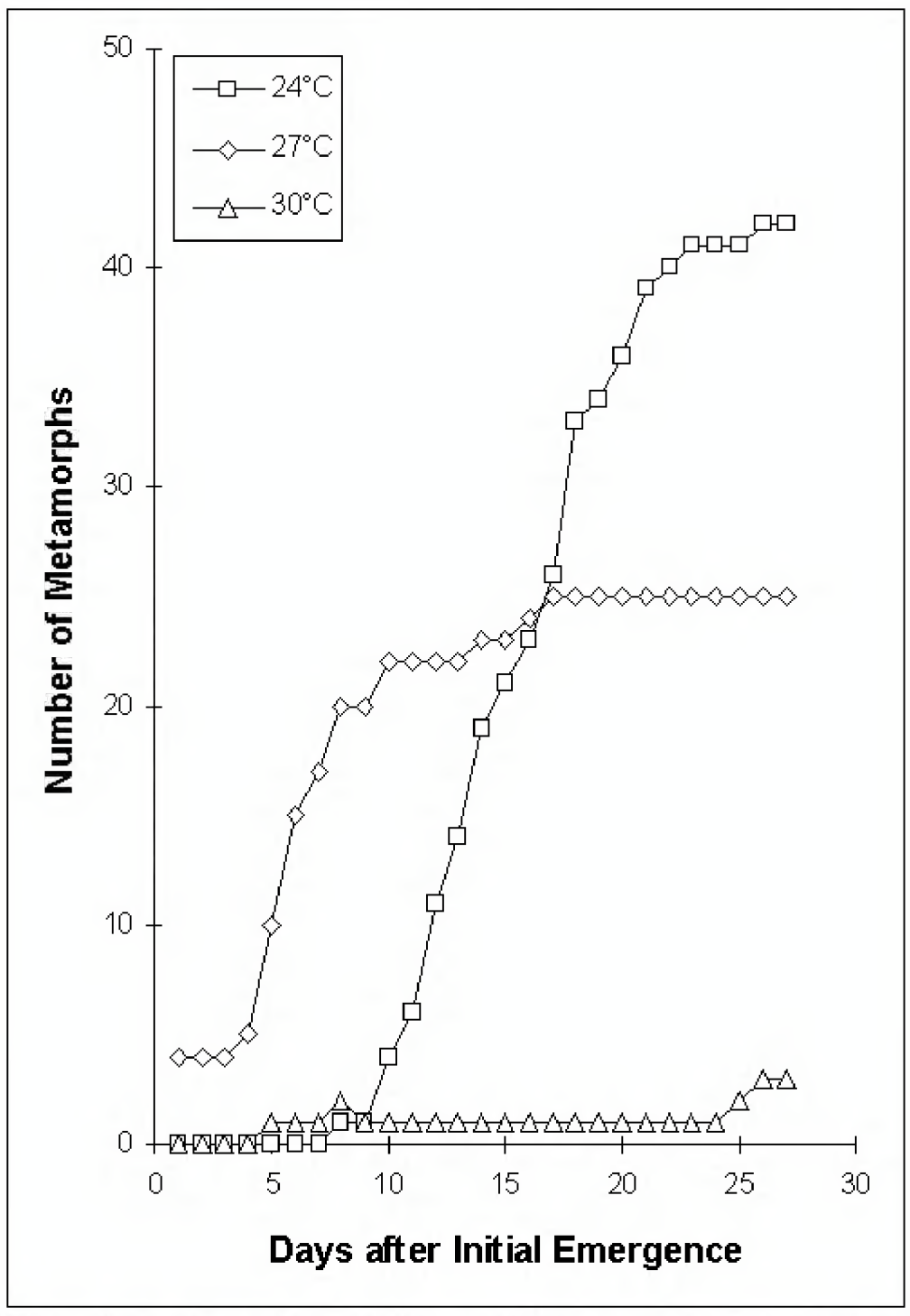

Figure 1. Incidence of individuals completing metamorphosis among the experimental temperatures. Day 1 is the day of the first metamorphosis (four frogs at 27°C). By day 27 all frogs had metamorphosed.

In summary, faster growth of tadpoles at a higher temperature can be attributed to the effect ambient temperature has on the metabolism of ectotherms. Frogs in the lowest temperature group (24°C) were slowest to initiate metamorphosis and were smaller at days 17 and 29 of larval development. Tadpoles in the three groups eventually attained similar SVL by the time of metamorphosis. Although tadpoles at 24°C were slower to initiate metamorphosis, they metamorphosed more rapidly as a group (within 11 days) compared to the other groups (e.g., 17 days for 27°C). A shorter, more compact time period for the metamorphosis of individuals in a pond should be beneficial in wild populations because predation would not be as great in contrast to a situation in which metamorphosing frogs were to leave a pond over a longer period of time, thereby cuing predators to their presence.

Tadpoles in the 24°C group exhibited lower mortality (egg to frog) than either of the other groups. Though metamorphosed frogs from the 27°C group were more robust (they weighed more per unit body length), they did not differ in SVL from the 24°C group. It is likely that the 3°C higher temperature enabled them to assimilate more food into soft tissue mass but did not significantly enhance skeletal growth. Raw jump scores did not differ between the 24 and 27°C treatment groups, but when distances were adjusted for body mass, the frogs in the 24°C group had a significantly higher score, i.e., they could jump significantly farther when weight was considered a factor. Though not quantified, a large number of tadpoles in the 30°C group developed physical anomalies and high mortality was evident shortly before metamorphosis (about the time forelimb buds were forming). This was not seen in the other groups. The highest temperature (30°C) was apparently too high to enable sustained normal development, suggesting a critical thermal tolerance for red-eyed treefrog development exists between 27 and 30°C.

Egg pool temperatures for *Agalychnis calcarifer* range from 23.9 to 26.2°C in southeastern Nicaragua (Caldwell, 1994). These field observations correlate very closely with the temperatures found to be most conducive for successful development of *A. callidryas* in this study and it appears that even within the natural temperature range, cooler temperatures (e.g., 24°C) are more conducive to larval and metamorph survival.

If the anticipation of rising global temperatures is correct, larval development of *Agalychnis callidryas* and quite possibly other species could be impaired unless the species adapt quickly. Information obtained from developmental studies such as this may help us better forecast the impact rising temperatures

will have on the survival of natural populations and perhaps provide some explanation as to why various species of anurans have disappeared.

Acknowledgments

We thank Jack Cover, Geoff Hall and Sandra Barnett in the Herpetology Section at the National Aquarium in Baltimore for the donation of eggs and for providing information as to the herpetoculture of *Agalychnis callidryas*. Tim Maret's statistical assistance is gratefully appreciated. The Shippensburg University Foundation Undergraduate Research Fund provided financial support for this study.

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A Comparison of Feeding Behavior in Two Pipids, *Xenopus laevis* and *Hymenochirus boettgeri*, with Emphasis on the Use of the Forelimbs

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Introduction

Anurans of the family Pipidae are well adapted to a thoroughly aquatic existence. Their broad, flattened bodies, retention of larval lateral line systems, and loss of tongue and eyelids have resulted in behaviors unique to this primitive aglossid family. One of these behaviors involves the use of the forelimbs while feeding and foraging (Halliday and Adler, 1987; Wagner, 1955). Most anurans utilize their front limbs to some extent while feeding. *Xenopus laevis* (African clawed frogs), like most pipids, use their "hands" extensively to shovel food into their mouths (Wagner, 1955). *Hymenochirus boettgeri* (dwarf African clawed frogs), though, have webbing between the digits of their forelimbs (Terent'ev, 1965). This fact makes feeding with its forelimbs in typical pipid fashion more difficult. Their is a definite paucity of data concerning the behavior of *H. boettgeri* except in its breeding (Rabb and Rabb, 1963) while *X. laevis* has been more thoroughly studied due to its use in medical research (Stewart, 1967). My study compares the use of the forelimbs while feeding in these two species. I also describe some associated feeding and locomotory behaviors in these two species.

Materials and Methods

Five 2–5 cm *Xenopus laevis* were housed individually in 4-liter squat fishbowls. The fishbowls were three-quarters filled with water without any gravel or other amenities. These subjects were fed a varied diet of live earthworms (large and small), live adult guppies, live and dead arthropods, dry flaked and pelleted fish food, and raw meat.

Three 2–3 cm *Hymenochirus boettgeri* were housed communally in a 40-liter aquarium. The aquarium was filled with water and contained floating *Ceratophyllum* sp. for the frogs to rest in, *Vallisneria spiralis* rooted in a gravel substrate, and several small stones and pieces of driftwood for hiding places.

The aquarium was filtered with an air-lift undergravel filter, Two more *H. boettgeri* were housed in a 4-liter "pickle jar" with a few sprigs of *Cobomba* sp. rooted in a gravel substrate, and a few small stones. *H. boettgeri* were fed small live earthworms, pieces of large earthworms, live baby guppies, live brine shrimp, live freshwater amphipods, and dry flaked and granular fish food.

Results and Discussion

These two species share some feeding behaviors in common, but their foraging strategies and methods of handling food items differ substantially.

Feeding Behavior of Xenopus laevis

Xenopus laevis utilizes both a sit-and-wait and an active hunting approach to foraging. The sit-and-wait approach I observed was similar to that briefly described by Halliday and Adler (1987), When using a sit-and-wait strategy *X. laevis* spends considerable time in shallow water resting on the claws of the hind feet with only the eyes and nostrils penetrating the surface film. The forelimbs are extended forward, palms upward, and the elbows flexed slightly in anticipation of prey capture. These frogs will remain in this position for a considerable duration if a prey item is suspended in view above the water surface, but out of reach. If the item drops into the water, *X. laevis* immediately lunges at and grabs the prey with

its forelimbs. The frog then forces the victim into its mouth, using its forelimbs to "shovel" the item into its mouth in typical pipid fashion.

X. laevis also utilizes an active, hunting approach to foraging. This tactic is used while submerged. The frog swims in a random pattern along the substrate with both forelimbs positioned as previously described. It will swim two or three short strokes with its hind legs, then tilt its head towards the ground. The frog will reach into crevices between the gravel with its "hands," and in a circumductive movement of the forearm sweep detritus into its mouth. Then with a chewing motion, the frog will spit out inedible portions of this material. If a large item, such as a 4–5 cm earthworm is found, *X. laevis* will hold it between the fingers. Then with alternating movements of the left and right arm, it will move the prey into and out of the mouth. The frog continues manipulating the worm until it is positioned satisfactorily, then swallows it.

If the worm is too large to swallow, *X. laevis* will reach ahead with one or both of its hind feet (while holding the worm with both its jaws and fingers). With the sole of the foot facing forward, the frog digs its claws into the top of the prey to tear off the protruding portion. The portion in its grasp is then swallowed. The use of these claws in feeding was briefly described by Wagner (1955) and their use as a facilitator to ecdysis was covered by Mc Callum (1997).

Feeding Behavior of Hymenochirus boettgeri

Feeding behavior and use of the forelimbs by *Hymenochirus boettgeri* differs substantially from *X. laevis*. The former does not hunt or feed with its forelimbs in typical pipid fashion. The forelimbs are not drawn into the body while swimming as in most frogs, or held forward in typical pipid fashion for feeding. Instead, the forelimbs are held pronate and used actively for swimming. When swimming to the surface for air, *H. boettgeri* uses the front limbs in either a breast stroke or dog paddle motion.

The front limbs are also used during foraging to turn over small pebbles or pieces of plant material, and to dig in the gravel for small worms and invertebrates. This species is not a sit-and-wait forager. It spends its time actively climbing about in vegetation, and scouring the substrate for prey. When it finds a small prey item, *H. boettgeri* moves stealthily towards it. Once close enough it lunges at the victim, using both the front and hind legs for propulsion (only the hind limbs are used for propulsion by *X. laevis*). The prey will be grabbed with the mouth only, and swallowed.

If this prey is large, *H. boettgeri* first attempts to tear it apart using its forelimbs by reaching forward palm downwards and digging its fingertips into the prey. By pulling its forelimb inward, the frog attempts to tear off the protruding portion.

If this tactic is unsuccessful, the frog will use its hind legs as described in *X. laevis*. *Hymenochirus boettgeri*, however, does not hold the prey with its hands. This species is able to catch small fish fry, crustaceans, and other animals in this fashion. Undoubtedly the more binocular position of its eyes, not dorsal as in *X. laevis*, aid the effectiveness of this strategy.

The active foraging displayed by *X. laevis* would be less effective with webbed hands. This behavior would not sweep items into the mouth, but away from it like waving a paper fan at your face on a hot day. Furthermore, frogs with webbed feet that handle prey in typical pipid fashion may damage this webbing, especially if the prey is a small crayfish or other arthropod. Such injuries could subject these individuals to infection, and the frogs could temporarily lose the ability to swim with their front limbs. This could impede both prey capture and escape from predators.

Such damage could also impair the frog's respiratory capacity, as the well vascularized webbing of some pipids has been suggested as an accessory respiratory organ (Wagner, 1955). If the webbing were damaged, this active hunter could experience reduced endurance while foraging due to lower oxygen uptake and carbon dioxide dissipation. The lowered respiratory capacity experienced due to webbing damage could also result in more frequent trips to the surface to breathe. These frogs could be more frequently susceptible to predation from above while breathing, and would likely be more frequently susceptible to aquatic predators during trips from the substrate to the surface. These factors likely selected against primitive *H. boettgeri* that used their forelimbs for feeding.

No other pipid genera endemic to either South America or Africa are known to display either webbed front feet, or *H. boettgeri*'s atypical feeding behavior. This seems to indicate that these characteristics have evolved recently in *H. boettgeri* from a more typical pipid ancestor. Consequently, these are probably advanced, not primitive, characteristics evolved for an aquatic active forager's lifestyle.

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Juvenal Tail Color in Taylor's Ground Skink (*Scincella silvicola*)

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All members of the genus *Scincella* in Mexico are relatively rare, in contrast with species of the similar-appearing genus *Sphenomorphus*. Martin (1958) reported 23 *S. silvicola* from southwestern Tamaulipas, but otherwise no more than about a dozen have been reported from other states (Nuevo León, Oaxaca, Querétaro, San Luis Potosí, Veracruz), and only one from Oaxaca (at Cuicatlán).

We here report two specimens of that species (UF 105894–5) from a second locality in Oaxaca: Bosque Nacional de Temascal, the first 4 km NW Temascal, the other 1 km SW Cedral, both 100 m. No. 105894 was found under a log at the edge of a clearing on a limestone ridge, 11 January 1990, by Steven P. Christman, the other 17 January 1990, by Fred G. Thompson.

More important than the locality, which is on the extreme northcentral edge of the state not far from Cuicatlán, is the apparent pink tail of the juvenile (105895), 32 mm snout–vent length (SVL), tail length 44 mm. The tail is now a light tan dorsally, much lighter than the body, much as the tail appears in preserved *Sphenomorphus assatus* and *Eumeces lagunensis*, which are well known to have a pink tail in life. In the former, the pink color is retained throughout life, whereas in the latter the tail becomes dark in adults (Grismer, 1996). There are scattered flecks of pigment throughout the dorsal and lateral surfaces of the tail of 105895, but presumably in life the color would have become progressively darker with age. In the adult (105894), 52.5 mm SVL (distal half of tail regenerated but of same color as base of tail), the tail is only slightly lighter dorsally than the body.

Taylor noted in his original description of *S. silvicola* (1937: 7) that his two types, both large adults, "have a tail lighter brown than body." Unfortunately Smith et al. (1952) failed to mention tail color of a very small (25 mm SVL) *S. s. silvicola*. In reference to the related *S. s. caudaequinae*, neither Smith (1951) nor Martin (1958) mentioned tail color, even though reporting numerous juveniles. Nevertheless the light color is so conspicuous in the present juvenile of *S. s. silvicola* that it would not likely be overlooked where present. Hence we suggest that the juvenal pink tail may be limited to the nominotypical subspecies, whose rank thus may be open to question. Observations of tail color in life are much to be desired for all members of the genus in Mexico; absence of a juvenal pink tail among Mexican species can at present be assured only for *S. lateralis*. A difference in this context between closely related taxa is evident in both *Sphenomorphus* (*S. cherriei* dark-tailed throughout life, *S. assatus* pink-tailed) and *Eumeces* (*E. lagunensis* regularly pink-tailed in the young, *E. skiltonianus* usually blue-tailed). Similar differences seem to exist in *Scincella*, but confirmation is needed.

The specimens here reported are essentially typical of their subspecies, although one (105895) has more midbody scale rows than previously reported (34), the other 32; the range for the subspecies is thus 28–34 (Darling and Smith, 1954). The nuchals are 1-2, 1-1, dorsals 61, 65, and the limbs overlap by 8-3 scales respectively. There is no dorsolateral light line.

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Book Review: *The Natural History of Monitor Lizards* by Harold F. De Lisle 1996. Hardbound. xiii + 201 pp. Krieger Publishing Co., Malabar, FL. ISBN 0-89464-897-7

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Monitors are impressive animals. Anyone who has ever watched one of these dramatic animals vigorously patrolling its domain cannot fail to appreciate their presence, vigor and intelligence. In addition their metabolism and anatomy mark them apart from their reptile brethren. Whilst the sheer bulk of many of the family single them out from other lizards, what is also notable is the economy of design. For despite the fact that there are some 70 named forms, they all look more or less the same save for size; no other genus of terrestrial animal demonstrates such a huge range of body sizes—spanning five orders of magnitude! They are an ancient form and it seems that their much vaunted resemblance to snakes is a consequence of convergent evolution.

Harold De Lisle is a professor of biology at Moorpark College in California and a well-known name in herpetological circles. His particular passion is for monitors, and this scholarly monograph is testament to his extensive reading and knowledge. This book sets a high standard and makes an impressive addition to herpetological literature. The first half of the text is a comprehensive synthesis of current knowledge and at the same time points out just how little is known of these imposing animals. Most of the information stems from studies of just six or seven species, which comes as a surprise when one considers the general level of interest in monitors and their importance in the lizard world.

There are eight chapters, plus appendices, references and two indices. The book opens with a brief overview of research followed by a detailed account of taxonomy with particular attention paid to phylogeny, the evolutionary relationships between groups of animals. There is a brief account of the fossil history and finally a comprehensive key is provided to 68 named species and subspecies.

There is an extensive account of the anatomical and physiological specializations of the varanids and this makes very interesting reading, particularly with regard to respiration and blood circulation. Hopefully I will not be the only reader who did not know that monitors have effectively a four-chambered heart. To facilitate their active life style monitors also have a more efficient blood buffering capacity than other lizards and a higher myoglobin content in the muscles thereby staving off the effects of fatigue.

"Ecology and Behavior" is an extensive chapter covering such topics as: reproduction, with partial data on the eggs of 32 taxa; population dynamics, including mean home ranges, population structure and survivorship; thermal behavior and ecology, habitat utilization and defensive behavior. The chapter culminates in a brief account of intelligence. Each section is substantiated by an exhaustive collection of references.

Chapter Five covers captive management and includes a list of references on captive reproduction, the most recent being 1995. Standard advice with regard to housing is included here, which in view of the scale of monitor caging is a little disappointing. For instance heating large cages is probably better entrusted to greenhouse tubular heaters rather than relying on incandescent bulbs, "hot rocks" or "heat strips or small heating pads placed under a cage."

The following chapter, on conservation, identifies those species most at risk from exploitation and highlights one of the major threats to the survival of monitors, the deprivations wrought by the skin trade. For example the estimated annual take in skins of *Varanus salvator* is in excess of 1.5 million. By comparison the live animal trade, *over the past decade*, has accounted for approximately 39 thousand specimens!

There is a portfolio of color plates depicting some 60 forms (some as both juvenile and adult) together with a few habitat photographs; conveniently the plates are arranged alphabetically.

Chapter Seven is a 28-page list of species descriptions. Each entry includes synonyms plus appropriate authorities, common name, description, distribution and a range map. There is a brief note on life history and ecology and size ranges are given for adult specimens. The maps are gathered together at the end of this section; within each description there is a code number to guide the reader to the appropriate map.

The concluding chapter, on future research in monitor biology, will be of great interest to would-be Ph.D.s and to herpetoculturists too.

Two appendices list the 70 recognized taxa by scientific name and then by common name. Finally, 15 pages are devoted to almost 200 references which have been gleaned from a wide range of sources including popular as well as scientific literature. This list is bang up to date as there are references from 1995.

This is an excellent book—it is authoritative and scholarly, and yet so well written that it is easily accessible to the layman. It will make a valuable addition to the herpetological literature and should appeal to both field biologists as well as reptile enthusiasts.

Bull. Chicago Herp. Soc. 32(10):215-217, 1997

HerPET-POURRI

by Ellin Beltz

Did anybody else notice this?

In a photo accompanying an article titled "Turning Turtle Racing into a Financial Boomlet" in the June 29, 1997, *New York Times*, a 5-year-old girl is shown staring at the "turtle she entered . . . in the turtle races . . . 340 turtles were entered." Several people [E. A. Zorn, K. S. Mierzwa and P. L. Beltz] sent in the clippings, but no one remarked that the approximately 4-inch-long painted turtle being held by the child is being held plastron upward and looks to be quite distressed about it!

Help rattlesnakes, write letters

"Wisconsin needs your help to prevent the extirpation of the timber rattlesnake from the state. The Natural Resources Board has passed a pseudo-protection rule, where the species is listed as a 'protected wild animal,' BUT a 'self-defense' clause allows killing the snakes at any time, anywhere, by any means, without any reporting requirement or accountability other than for one to say one 'felt threatened' or that a dog or cow was 'in danger.' Absolutely no reporting is required when a snake is killed. The website on the Wisconsin timber rattlesnake has been completely updated at <http://www.mpm.edu/collect/vertzo/herp/timber/factshe1.html>. Letters of protest should be sent to: (1) Trygve A. Solberg, Chair, Wisconsin Natural Resources Board, P.O. Box 50, Minoqua WI 54548; (2) Betty Jo Nelsen, Vice-Chair, Wisconsin Natural Resources Board, 4033 Petit Road, Oconomowoc WI 53066; (3) George E. Meyer, Secretary, Wisconsin Department of Natural Resources, P.O. Box 7921, Madison WI 53707. Clearly state your concerns for the final board decision. Politely demand that the reporting requirement be reinstituted with the 1-800 number, which does not inconvenience landowners. Make the point that populations are clearly well below viability and that the Department has shirked its responsibility to protect an imperiled species. Use the following points as you see fit: (1) The proposed rule will increase the risk of snakebite to the public by sanctioning instead of prohibiting snake–human interaction; (2) The decision clearly contravenes the intent of the Protected Wild Animal rule, where a protected animal is allowed special exemptions from protection without any accountability. It will allow the killing of rattlesnakes anywhere, anytime, in any manner, with no requirement to tell anyone that the killing occurred. One need only state that one felt 'threatened,' or that one's dog or cow was 'threatened,' to legally kill the animal; (3) The amendment for reporting included providing for no carcass handling to minimize bite risks, and a 1-800 number for reporting. This is the part of the suggested compromise that was never read; (4) The lack of a reporting requirement robs the Department of the opportunity to collect valuable scientific information on human-introduced mortality, identify areas [where] snake populations are in contact with residents, and collect biological information on carcasses; (5) The rule affords very little protection to this vanishing species (the only enforceable provision is the ban on possession of rattlesnakes), and will likely result in the future need to list the species as a threatened or endangered species." Background and news summaries are available on the website <http://www.mpm.edu/collect/vertzo/herp/timber/Conserv.htm>. "1997 Timber Rattlesnake Survey Results: Data collected strongly advanced the case for listing as a threatened species, supporting an estimated population decline of one order of magnitude (meaning that where there once were 100 snakes only 10 remain) with few viable populations remaining. Only one viable den site could be found in 1997. . . . On August 27, 1997, the Natural Resources Board voted to approve the listing as a Protected Wild Animal, but changed the language to allow the killing of rattlesnakes in 'life threatening' situations and to 'protect' pets and livestock, and changed the reporting requirement for such killing to a voluntary request. Implications of the Board ruling: If allowed to stand, the wording of the NRB revised rule should result in the following: (1) It will allow the killing of rattlesnakes anywhere, anytime, in any manner, with no requirement to tell anyone that the killing occurred. One need only state that one felt 'threatened,' or that one's dog or cow was 'threatened,' by the snake to legally kill it. This clearly contravenes the intent of the Protected Wild Animal rule; (2) It will increase the risk of snakebite to the public by sanctioning, instead of prohibiting, snake–human interaction; (3) It will not allow for the collecting of human-induced mortality data within the rattlesnake's range, as no reporting is required; (4) It will afford little protection to this vanishing species (the only enforceable provision is the ban on possession of rattlesnakes). What's next? This rule will now go to the two Natural Resource Committees of the state legislature for approval. Mr. Johnsrud, as chair of the Natural Resources Committee, is expected to hold more hearings before it goes to the Assembly's committee for a vote." Gary S. Casper <http://www.mpm.edu/collect/garyc/html>, Coordinator, Wisconsin Herpetological Atlas Project <http://www.mpm.edu/collect/vertzo/herp/atlas/welcome.html>; Chair, Great Lakes Declining Amphibians Working Group <http://www.mpm.edu/collect/vertzo/herp/daptf.html>. Regular mail to Gary at: Vertebrate Zoology Section, Milwaukee Public Museum, 800 W. Wells Street, Milwaukee WI 53233, or call (414) 278-2766, fax (414) 278-6100, E-mail: <gsc@csd.uwm.edu>.

Lawsuit planned

"Tucson Herpetological Society, Horned Lizard Conservation Society, Defenders of Wildlife and other conservation organizations intend to sue the U.S. Fish and Wildlife Service [USFWS] for denying listing of the flat-tailed horned lizard under the Endangered Species Act. On July 15, 1997, USFWS withdrew its rule to list the species, due in part to a recent unproven Conservation Agreement. Plaintiffs say the lizard meets four of five conditions that trigger listings, any one of which can trigger listing. [*Greenlines*, August 14, 1997, from Roger Featherstone]

Turtles seized in Sri Lanka

"Reuters reports customs officials in Sri Lanka this week seized 41 endangered star tortoises being smuggled to Ger-

many, part of what is believed to be a large-scale smuggling ring. Officials say that Sri Lanka has become a smuggling hot spot due to an absence of laws to punish offenders. [*Greenlines*, August 14, 1997, from Roger Featherstone]

Busted on the way to Orlando

"Two men on their way to a reptile breeders show were arrested when they tried to smuggle snakes and turtles worth $70,000 into the country, authorities said. Reptile dealers Kei Tomono, 26, of Chiba City, Japan, and Masakazu Iseya, 41, of Hasuda City, Japan, were arrested last week at Orlando International Airport by agents from the U.S. Fish and Wildlife Service [USFWS]. Agents found eight snakes thought to be from Southeast Asia in Tomono's suitcase. Two turtles were in Iseya's luggage, said Assistant U.S. attorney Tom Turner. U.S. Customs officials in San Francisco had notified the USFWS that Tomono, a suspected smuggler, and Iseya were scheduled to arrive in San Francisco that afternoon from Japan. A secret search of their bags revealed the snakes and turtles, but the men and their luggage were allowed to continue to Orlando. Both were arrested and charged with importing wildlife without disclosing it to U.S. officials as required by law. On August 7 an Orlando grand jury indicted Tomono on separate smuggling charges. He is accused of smuggling 64 Fly River turtles, indigenous to Indonesia and Australia, and 113 snakeneck turtles to Orlando in April 1996. Both types of turtles are endangered in Japan. Trellis Poe of the National Reptile Breeders Exposition, which sponsored the show in Orlando over the weekend, said the group does not condone smuggling. 'Everything has to be captive-born,' Poe said. 'Everything has to be licensed. And if we find someone here who isn't doing what they're supposed to be doing, we don't let them come back.' U.S. Magistrate James Glazebrook set bail Friday for Tomono at $100,000, but suspended it pending a review by a federal judge. Iseya's bail was set at $25,000." [*Miami Herald*, August 18, 1997, from Allen Salzberg]

Busted at home in Holland

"Associated Press reports a Dutch owner of a reptile business has been indicted on charges he illegally smuggled 13 endangered tortoises into the U.S. Customs agents in Florida found the Madagascan tortoises, listed under the Endangered Species Act, hidden in five socks in Fredrich Postma's suitcase. Postma faces a maximum sentence of five years in prison and a $250,000 fine." [*Greenlines*, September 9, 1997, from Roger Featherstone]

It may have seemed like a good idea . . .

The Sydney, Australia, *Daily Telegraph* reports:

"Queensland's rarest snakes could be poached into extinction because of a radical New South Wales [NSW] wildlife protection policy, Queensland fauna squad police fear. The fears were revealed in response to the NSW Environment Department's plans to pursue a policy of an amnesty for illegal reptile keepers to register collections. Queensland Police fauna squad chief John O'Shea has written to the Queensland government urging it to protest about the amnesty, which is expected to be announced this week. Sergeant O'Shea said the amnesty could in fact cause the extinction of rare reptiles in the wild. He said in the letter, obtained under Freedom of Information, that the amnesty had already prompted a black market buying spree by illegal NSW reptile keepers. [September 23, 1997, from Raymond Hoser <adder@bigfoot.com> and <http://www.smuggled.com>.

Busted for taking tuataras, again!

Bruce Hudson of the New Zealand Herpetological Society kindly sent me an advance copy of his article about the arrest and sentencing of a man for taking four tuataras from the wild. Bruce wrote: "Go to jail. Go directly to jail. Do not pass Go. DO NOT collect tuataras. Frederick Robert Angell, age 38, a panelbeater of Waimate (160 km north of Dunedin) was the first person to be imprisoned for the smuggling of tuatara. Now he is also the second. The most recent chapter of the Angell story started with four tuataras found in a box near Waimate in May this year. (See May 17 *Evening Standard* report, page 18 of Moko 97/2). Appearing in court on August 15 this year, Angell pleaded guilty to a number of breaches under the Wildlife Act and Endangered Species Act, plus the theft of a motor vehicle. Angell admitted to the taking the four tuatara in May, and according to a *Nelson Mail* report (August 15) conspiring with Anson Wong to trade in tuatara between May 12 and July 4. Anson Wong is a wildlife trader based in Penang, Malaysia. Angell was released on bail under strict probation conditions so he would have a chance to put his affairs in order, as it was felt likely that he would receive a prison sentence. Angell slipped his bail and simply didn't turn up for his day in Nelson court on Friday, August 22. He had been reported leaving for Nelson from Waimate the previous evening, possibly in a stolen car. There was much speculation where Angell could have run to, but Radio New Zealand was reporting a sighting of him in South Canterbury on August 28. Later, Angell admitted breaching bail, plus, according to other reports, was implicated in other crimes. When recaptured, Angell attempted to change his plea to 'not guilty,' asserting that he suspected entrapment. Judge Walker of the Nelson District Court rejected his application when the prosecution revealed that the associate was not an undercover agent as alleged, but had merely assisted DoC officials with their enquiries. Bizarrely, Angell had also asked that a Maori high priest lift a tapu on him, which surprised a number of people, as there is little to suggest that Angell was previously concerned with Maori protocol. Sentencing Judge Walker sentenced Angell to three years and three months in prison, and ordered that equipment Angell used be forfeited. Angell was also fined $2400. For many individuals this sentence would have been very severe. But for repeat offenders like Angell? The New Zealand justice system is geared to rehabilitate offenders, so an individual like Angell gets soft sentencing. It's likely that the incentive of early release will motivate Angell to say, 'I'm going straight now.' Only time will tell if he is to be believed this time. What makes Angell tick? Angell has consistently offended and re-offended over the years, so the question of what motivates him to re-offend must be asked. At several thousand dollars per animal, money has to be a big factor. According to Judge Walker, Angell was motivated by personal gain and a willing partner in the taking of tuatara. A secondary factor is that Angell has become well

known as someone who is prepared to illegally supply wildlife for a buck. It is probable Angell will be contacted in the future by less scrupled people [who] will make him offers if he can get his hands on some of New Zealand's fauna. This may prove to be too much a temptation for Angell to resist. Harsh words from some. . . . One government official said [off record] that Angell . . . should be injected with a sedative, jammed into a tight-fitting tube and shipped around the world for a few months . . . soaking in his own . . . [then something unprintable, about the tube not being fitted with toilet facilities]. Angell even attracted comment from DoC minister Nick Smith, who was reported in the *Timaru Herald* (September 12) as saying, 'It must be damned frustrating to have to deal with repeated smuggling attempts from the likes of Mr. Angell. One wonders how many times a person has to be prosecuted to recognize that New Zealanders won't tolerate people hocking off their heritage?'" [via E-mail, September 23, 1997]

Frogs dying in Central America

"The *New York Times* reports 9/23 that biologists believe a lethal protozoan is killing frogs across Central America. Habitat loss has been cited as the main reason for population declines, but the introduction of pathogens is an explanation for widespread frog death in pristine environments. If protozoans are responsible for frog deaths, questions remain: How was the infectious disease spread? And since the lethality and spread of the disease suggests it was introduced, by whom?" [*Greenlines* #467, September 24, 1997, from Roger Featherstone]

Hope to see you all November 15

Several people have asked me how it is that my collection has become so small that I am selling tanks, heaters, pumps, filters, flat rocks, water bowls and the other impedimenta of a formerly largish herp collection at my "Great Herpetological Re-sale Sale" on Saturday, November 15, from 10:00 A.M. to 4:00 P.M. What happened was that the adjoining property owner wrecked an old building on his property and just about wrecked my house in the process. I was away when it happened (of course) and when I got home found my basement flooded (the heat off, of course), my foundation undercut, and my side walkway and catch basin missing. Most of the concrete in the basement heaved when the catch basin rose upward under hydrostatic pressure. So we had to move everything in a hurry. Also, the engineers that the insurance company called in said for us not to heat the basement. They were afraid the whole building would slip into the excavation! Obviously some of our animals had to go. We couldn't possibly house a basement full of critters in an apartment already full of critters and people. So we found homes for the big, bright, showy stuff and moved the salamanders and frogs into the bedroom (some were even under the footed bathtub for a while!) and anywhere else we could stuff an animal's tank. Needless to say, the initial mortality was high and subsequent mortality over the past year in addition to giving away any animal that I possibly could has reduced my need for aquaria and the associated accessories. To repair the damage to the drywall (every seam was cracked) we had to move our stuff out room by room so that the work could be done. This resulted in me sorting out books, posters, T-shirts, tchotchkes, dust catchers, herp jewelry, and other little things that I think other people would enjoy having. Incidentally, the insurance, while covering a lot, did not cover everything. And nothing can cover my anguish at losing so much so fast. So, now you know why we're having the sale. I hope everybody comes to it. I will be giving away clippings used to create these columns and hope that we have a lovely party in and around recycling a whole lot of really cool herp stuff. As always, my address is 1647 N. Clybourn Avenue (between North and Willow, four traffic lights east of the Kennedy Expressway [I-90/94]). There's plenty of curbside parking, but be citysmart in what you leave out in plain view. We are half a block north of the Howard Red Line Station of the CTA and there's an official bike rack three buildings south of the house. If you've been here before, I can't wait until you see how the neighborhood has changed.

Next month this column returns to its regular clipping-oriented format. I had to rush this time and so used a lot of Internet stuff because it only needs to be edited rather than written. Please continue to send clippings with the date/publication slug firmly attached (or the whole sheet—there's little weight to newspaper). In either case, please put your name on each piece and mail to: Ellin Beltz, 1647 N. Clybourn Avenue, Chicago, IL 60614-5507. Letters and text to my E-mail address <ebeltz@ripco.com>.

Currently Happening Stuff

reported by Gary Kostka

Method to My Madness

The February 1996 issue of the CHS *Bulletin* marked the final appearance of "Newtline," the monthly column by member Debi Hatchett which covered the goings-on at our general meetings as well as events such as Reptilefest and the annual CAS HerPETological Weekend. The column provided members, especially those unable to attend general meetings and special events, with a snapshot of the activities within the CHS. I've missed Newtline and the homespun feel that it brought to the *Bulletin*, and I've heard those same sentiments echoed by other CHS members. It is for this reason that I've decided to face my fear of computer word processing, and attempt writing a monthly column designed to keep members abreast of what's going on within the CHS. The tone will be very informal, and I intend to cover not only meetings and events, but also other CHS news and topics of interest. The absence of Newtline has left a void within the *Bulletin*, and it is my hope to try and fill that void with this new monthly offering. Without any further ado, here goes. . . .

August 27 General Meeting:

Those members attending the August 27 general meeting were in for a great show. The featured speaker was Roger Repp, President of the Tucson Herpetological Society. His presentation was titled "An Overview of the Herpetofauna of Southern Arizona." In a glowing introduction given by Mike Dloogatch, it was noted that Roger had cut his herpetological teeth as a young member of the CHS, and that he had also written articles for the *Bulletin* around 1969 or '70 in his pre-teen years. After a warm round of applause from the audience, Roger opened up by paying homage to his Illinois roots, and herping in the Midwest. He told us we all had plenty to be proud of, but you could tell that he knows he's found a herper's Shangri-la since relocating to the Tucson area. His love of southern Arizona and its native herps was genuinely and enthusiastically conveyed throughout his fascinating presentation.

Roger began his presentation with a guided tour from west to east across the southern third of Arizona, showing slides depicting the various habitats found there, and some typical herps associated with each of those habitats. We started the tour in the desert near Yuma, at an elevation of 100 feet. The sparsely vegetated sandflats there are home to the flat-tail horned lizard and the sidewinder. Roger explained that the flat-tail horned lizard is extremely rare, and that the Tucson Herpetological Society is currently involved in litigation with the U.S. Fish and Wildlife Service in an attempt to have this lizard listed.

Moving eastward and upward, we came to the Mohawk Dunes and Mohawk Mountains, ranging in elevation from 300 to 1,200 feet. The dune country is inhabited by the fringe-toed lizard and the shovelnose snake, both adept at moving either on top of or below the sandy sub-strate of their home.

From here we ventured on to one of Roger's favorite herping spots in the Tucson area. Located within the Sonoran uplands, he fondly refered to it as "the 'winder spot" because of the many sidewinders that he's encountered there. Vegetation was far more varied and prolific at this elevation than what we had seen in the previous habitats. Other herps found in this locale included the desert iguana and the glossy snake, another of Roger's many personal favorites.

Proceeding upward to an elevation of between 2,500 and 4,000 feet, the habitat becomes more montane in its characteristics. This is also one of Roger's most productive and oft-visited sites, known for its abundance of desert tortoises and lyre snakes. He also noted that Gila monsters, chuckwallas and diamondback rattlesnakes rounded out the list of herps in the area, making this a favorite winter stomping ground of his. He was to expound upon this later in the presentation.

We moved on to a canyon located in the Catalina Mountains at an elevation of between 3,000 and 4,000 feet. Saguaro cactus still dotted the landscape, but our guide let us know we'd be losing those as we continued our upward climb. In the canyon, colorful collared lizards and tiger rattlesnakes are found. With it's small head, thick mid-body and large rattle, Roger described the tiger as looking as if it had been made up of the leftover parts from other rattlesnakes. The small head may be useful in extricating prey from rock crevices which make up much of their prefered habitat. Roger noted with pride that he and others are currently involved in a first-time-ever, formal study of tiger rattlesnakes in the Tucson area using implanted radiotelemetry devices. It was his belief that we'd all know a thousand times more about tiger rattlesnakes than we do now at the conclusion of their work.

Brown Canyon was our next stop. At elevations ranging between 4,000 and 7,500 feet, stands of saguaros had been for the most part replaced by scrub oak. It was here that we met up with the Arizona coral snake and the extremely rare green rat snake. The green rat snake is a prized find not because of its beauty (a fact borne out by Roger's slide of the animal), but by virtue of its scarcity. In some 60 attempted searches, Roger has managed to find only one on his own, and one while with a group. This gives him a total of just two encounters with the species.

At an elevation of 5,000 feet, we entered the Grasslands, an area Roger felt might be mistaken for Illinois if not for the surrounding mountains. During the wet season desert box turtles can be found here, and it is also home to the western

hognose snake.

At 5,500 feet, we found ourselves halfway up a canyon known as Happy Valley. The beautiful regal ringneck snake is commonly found in this locale. Also encountered here is the Arizona black rattlesnake, the most gorgeous and impressive of the 11 species of Arizona rattlesnakes in our guide's opinion. A difficult snake for Roger to find, each sighting is cherished by Roger as if it may be his last.

In hushed tones we were introduced to our next stop on our statewide tour, a small draw some 300 yards long and a mere 12 feet wide at the bottom, which Roger referred to as Ridgenose Country. Roger admitted that his revelation of the draw's location might be cause for his own demise at the hands of his fellow Tucson area herpers. "In fact I may have to kill you all, now that you know my secret," he kidded. Over seventy ridgenose rattlesnakes have been marked here, and the little draw is also home to the rock rattlesnake. The 5,700 foot elevation of this habitat is considerably lower than the 7,500 to 8,000 foot level at which these creatures were once thought to dwell. It seems that the ridgenose favors cooler temperatures than the rock rattlesnake. Knowledge of this tendency is useful when seeking these animals, as the rock rattler is most often found in sunny exposures whereas the ridgenose tends to seek out more shaded areas.

The colorful mountain treefrog, a species rivaling the beauty of the various poison dart frogs, is also found within the confines of this small canyon. It was with a great deal of sadness that Roger described the near extermination of the mountain treefrog within this habitat because someone had released some bullfrogs into their breeding ponds. He noted that he had recently seen his first mountain treefrog at the site in four years, and felt they might be making a comeback. It seems that the area had experienced a drought during which the ponds had dried up, thus eliminating the bullfrogs, and allowing the native treefrogs to slowly move back in after the drought ceased and the ponds refilled. Respectively, the ridgenose rattlesnake and mountain treefrog are Arizona's state reptile and amphibian, and one got the feeling that this site, providing a home to both, had a special place in Roger's heart.

Our next stop was the Chiricahua National Monument at an elevation of between 6,000 and 7,000 feet. Described by our guide as the one place that he would go if he had only one day to spend in Arizona, the scenic splendor of the location was evidenced in Roger's slides. He admitted that he doesn't care whether he finds reptiles or not when he goes there, but he manages to do so anyway. Here we saw striking (adjective not verb) yellow-phase blacktail rattlesnakes, and beautiful tricolored Arizona mountain kingsnakes.

We moved onward and upward to a grassy meadow at 8,000 feet which again reminded Roger of typical habitat found in Illinois. The herps found at this site were also reminiscent of Illinois' garter snake and leopard frog, however these were the blackneck garter snake, and the Chiricahua leopard frog. The habitat of the Chiricahua leopard frog has been reduced to just ten percent of its former area within Arizona, the majority having been lost to land development, cattle grazing and acid rain. Habitat conservation efforts between cattle ranchers and the state are now underway, so it is hoped that there will be a positive future in store for this species.

Our tour topped out at the 8,000 foot level, the montane habitat of the twin-spotted rattlesnake. Living in the rocky debris of talus slopes, they are either seen in abundance, or not at all. The best time to find them is during the brief sunny periods following cool, rainy mornings when they come out to bask. Roger claimed to have found 11 in five minutes under these conditions, and one's luck is somewhat dependant on being in the right place at just the right time.

With our tour at an end, Roger went on to discuss some of the more unusual things that he's seen in the course of his southern Arizona wanderings. This included a hilarious story of a unique capture of a flat-tail horned lizard by a woman studying the species, and being assisted in the field by Roger. The lizard in question was located under a truck, with Roger and the woman lying face down on either side, hemming it in. Roger made a fumbling grab for the creature, and it darted away in the opposite direction, beneath the woman's outstretched hand, up her sleeve and down into her blouse. Although Roger considered assisting the woman in the retrieval of the wayward lizard, decorum prevailed, and he allowed her to accomplish this task on her own. With pictures of the woman's gyrations accompanied by his vivid narrative, Roger managed to bring quite a chuckle to the assemblage.

The final portion of the evening's presentation dealt with some of the behaviors and survival strategies of the animals most familiar to Roger. Most of his field trips by design fall within a 50-mile radius of Tucson. This imposes no real limitation on him however, as most of his favorite herping spots fall well within this range. All the information covered by Roger in this segment was truly fascinating, but I'm compelled to report on just the main topics because a more complete coverage would be beyond the scope of this article.

Much of Roger's field work is conducted during the winter months. This has allowed him the opportunity of observing behaviors in animals that were either contrary to those described in the literature, or completely unknown. We were shown slides of rattlesnakes mating taken by Roger in mid-March of 1994. At that time it was considered a proven fact that all species of rattlesnakes mated only in the autumn months. As actual penetration could not be seen in the slides, they were dismissed by a rattlesnake expert as being inconclusive. However, within 18 months, early spring mating in diamondback rattlesnakes had been documented and published by another individual, and is now considered an accepted fact.

Denning behaviors and den selection of Gila monsters and desert tortoises were discussed at some length. We were shown an interesting slide of a Gila monster within its den. This unique photo was taken by using a fiber optic thorascope inserted through the den opening and down inside the den cavity. Roger commented that many of the animals that he observes in winter are returning to the same den sites year after year, and that he has almost come to view them as pets.

Winter habits of the lyre snake were also covered. According to Roger, they shelter in narrow rock crevices, mostly of a vertical orientation. They thermoregulate by moving either up or down within the crevice, thus maintaining optimal body temperatures. These crevices are necessary to the survival of the lyre snake, and may have been used for thousands of years. Roger expressed his hope that the sites would not be destroyed by unscrupulous collectors using prybars to extricate the snakes.

The presentation concluded with what was perhaps the most interesting topic of the evening, a discussion of Roger's observations of the winter denning, and early spring mating behaviors of the western diamondback rattlesnake. Slides were shown of diamondbacks sharing winter quarters with packrats. It is Roger's theory that the two species have a symbiotic relationship during the winter season. The packrats benefit by eating any snakes that may have died, as well as pieces of the living snakes' rattles. They also recieve protection from larger predators unwilling to pursue them into the rattlesnake's lair. The rattlesnake benefits in turn from the accumulation of the packrat's nesting material, which serves as a form of insulation within the den. The snakes don't eat the rats because its simply too cold at this time of year for the snakes' appetites to be stirred. The rats however become nervous and vacate the den sites as spring approaches, and the temperature rises.

Spring also brings on mating activity for the diamondbacks, and Roger covered this subject at length. One of the more unusual behaviors discussed was harem guarding, where a male snake places himself between an intruder and a group of females which he has claimed, at times covering their bodies with his own. Also covered extensively, and well documented with slides, was the combat dance of the male snakes the results of which determine dominance hierarchies and mating rights. Roger even went so far as to say that he thought that he could read expressions of aggression and fear on the faces of the subject animals involved in the combat.

Roger concluded his talk with a chart detailing the peak months of herptile activity in southern Arizona. Acording to his statistics, the most favorable months to see herps are March, and August through September, with late September being preferable because of the cooler temperatures. "And I tell you all this," concluded Roger, "'cause I just don't want you to come to Arizona and get skunked." Frankly Roger, after having seen your amazing presentation I'm not sure that would be possible.

Thanks for your indulgence. See you next month.

Unofficial Minutes of the CHS Board Meeting, September 19, 1997

The meeting was called to order at 8:40 P.M. Board member Gary Kostka was not present.

Officers' Reports

The minutes of the August Board of Directors meeting were read, corrected and accepted.

The Treasurer's Report was reviewed and accepted.

John Driscoll reported a current membership of 1144. Membership lists will be mailed out with the October *Bulletin*s.

Jack Schoenfelder handed out an update on coming speakers.

Committee Reports

Membership: Jenny Picciola presented a draft questionnaire to be used in a telephone survey of past members who have failed to renew. The phone campaign will begin as soon as the final list of questions has been approved.

Reptilefest: Lori King-Nava and Char Haguewood were on hand to discuss the venue issue. They have eliminated Navy Pier as a possibility for 1998. The best-looking option as of now is Northeastern University. Any other suggestions for a site for the 1998 show will be welcomed. See Lori, Char or Ron Humbert.

Old Business

Bulletin Storage Boxes: Jack Schoenfelder reported that storage boxes for the *Bulletin* are once again available. They will be sold at the meetings and through the mail at a cost of $10 including tax and S&H.

Parking at general meetings: Steve Spitzer discussed the situation, but basically had no new information.

New meeting site: Ron Humbert continues to seek out other venues to hold our general meetings until the Chicago Academy of Sciences opens their new facility.

CHS youth auxiliary: Greg Brim discussed his proposal to establish a group for young CHS members. The group would meet in the suburbs on weekends. The consensus of the board was to move forward with such a project. Ron Humbert and Audrey Vanderlinden promised to participate actively, along with Greg. Greg will put together an announcement for the *Bulletin*.

Round Table

Ron Humbert thanked Lori King-Nava and the Reptilefest Gang for their hard work and enthusiasm in preparing for 'Fest '98.

Jenny Picciola announced that the CHS now has its own URL. The CHS webpage can now be found at <http://www.chicagoherp.org>.

The meeting adjourned at 10:05 P.M.

Respectfully submitted by the Recording Secretary
Audrey Vanderlinden

Herpetology 1997

In this column the editorial staff presents short abstracts of herpetological articles we have found of interest. This is not an attempt to summarize all of the research papers being published; it is an attempt to increase the reader's awareness of what herpetologists have been doing and publishing. The editor assumes full responsibility for any errors or misleading statements.

EFFECTS OF TAIL LOSS ON IBERIAN ROCK LIZARDS

J. Martín and A. Salvador [1997, Herpetologica 53(1):117-125] note that many lizards use caudal autotomy as an anti-predatory strategy. They experimentally examined the effect of tail loss on the time-budgets, movement patterns, and home range size of the Iberian rock lizard, *Lacerta monticola*, in the field during the mating season. Their results indicate that tail loss did not alter most variables in male and female time-budgets but did affect the time spent moving and movement patterns of males. Tailless males spent less time moving and, when moving, more time on rocks, with shorter movements, more pauses, and less time on bushes than did tailed ones. Home range size was smaller in tailless males but did not differ between tailed and tailless females. The results suggest that tailless males may compensate the survival cost of autotomy by modifying their use of space and time; as a result, however, they may incur lower access to females.

COLD TOLERANCE IN HATCHLING SLIDERS

G. C. Packard et al. [1997, Copeia (2):339-345] investigated cold tolerance in hatchling slider turtles (*Trachemys scripta*). They found that the equilibrium freezing point for body fluids is approximately -0.6°C, but turtles in dry, ice-free environments supercool quite readily at least to -4°C. However, the integument of neonatal sliders offers little resistance to the penetration of ice into body compartments from the environment, and freezing of body fluids usually is fatal. Thus, hatchlings that survive over winter in the field probably are in subterranean hibernacula where surrounding soil remains unfrozen. The northern limit of distribution for sliders consequendy may be set by the depth to which the soil freezes during winter. Indeed, the limit for distribution of sliders in Illinois corresponds with a line connecting localities where the ground freezes almost every winter to a depth of 12 cm, which is approximately the depth to the bottom of the average hibernaculum.

THE TADPOLE OF *PSEUDIS MINUTA*

R. O. de Sá and E. O. Lavilla [1997, Amphibia–Reptilia 18(3):229-240] describe the external morphology, oral disc, and color pattern of the larva of *Pseudis minuta*. These tadpoles are mostly bottom dwellers, having a small, terminal oral disc with a labial tooth row formula 1(1-1)/(1-1)2. Internal oral anatomy is characterized using scanning electron microscopy; this is the only description available for the family Pseudidae. The color pattern of *P. minuta* tadpoles is compared with that of other pseudids. *P. minuta* larvae do not exhibit the ontogenetic color change reported for *P. paradoxa*. Considering larval color, larval size, and reports of adult size, acceleration and hypermorphosis are suggested as possible heterochronic mechanisms involved in the evolution of *Pseudis*.

FREEZE TOLERANCE IN SPRING PEEPERS

J. R. Layne, Jr., and J. Kefauver [1997, Copeia (2):260-264] studied freeze tolerance and postfreeze recovery in the frog *Pseudacris crucifer*. They collected frogs from Pennsylvania during the autumns of 1994 and 1995. All experiments were in the laboratory and employed a freezing temperature of -1.5°C. This treatment froze 45% of the body water in these frogs, and they were clearly tolerant of internal freezing. However, their survival was inversely proportional to freeze duration (3 day = 85.0%, 7 day = 52.6%, and 28 day = 0%). Cutaneous blood flow, breathing, hind-leg retraction, righting reflex, and jumping ability returned to surviving frogs within 24–48 h following the conclusion of a 3-day freeze. Complex behavioral responses (e.g., jumping) required more time to return than did basic physiological functions (e.g., cutaneous blood flow). Interestingly, rates of oxygen consumption were not altered during the recovery period with respect to the prefreeze value. This study indicates that the freezing survival of *P. crucifer* is markedly influenced by the duration of the freeze episode, which may be an important ecological limitation during winters having few intervening thaws. Recovering frogs require 1–2 days to fully regain complex motor responses; whereas vital functions are restored quickly, and oxygen consumption is not measurably altered.

TAXONOMY OF ALABAMA WATERDOGS

H. L. Bart, Jr., et al. [1997, J. Herpetology 31(2):192-201] note that in 1937 Percy Viosca described *Necturus alabamensis* as a flattened form from the southwestern extremity of the Cumberland [= Appalachian] Plateau. *Necturus beyeri* was described as a more cylindrical-bodied form occurring over a wide area of the lower Gulf Coastal Plain, but sympatric with *N. alabamensis* in the Black Warrior River near Tuscaloosa, Alabama. Subsequent workers considered *N. alabamensis* to be allied to or synonymous with *N. beyeri*, ultimately applying the name *alabamensis* to populations throughout the Mobile Bay drainage, and to lowland populations from southern Mississippi and eastern Louisiana to southern Georgia and panhandle Florida. The authors present pigmentation, morphometric, and distributional evidence that: (a) the distinctive waterdog in the upper Black Warrior River drainage is in fact the form Viosca described as *Necturus alabamensis*; therefore, the epithet *alabamensis* applies to that form; and (b) *N. alabamensis* and the lowland form Viosca referred to as *N. beyeri* are in fact syntopic on the Appalachian Plateau just above the Fall Line near Tuscaloosa. They describe the juvenile pigmentation pattern of the upper Black Warrior waterdog (unknown to Viosca) and relate it to the distinctive adult pigmentation pattern. Past taxonomic and nomenclatural treatments of eastern Gulf Slope *Necturus* are summarized, and recommendations are offered for revising the taxonomy and nomenclature of these populations/species based on available evidence.

Advertisements

American Federation of Herpetoculturists: A nonprofit national membership organization of herpetoculturists, veterinarians, academicians and zoo personnel involved in the captive husbandry and propagation of amphibians and reptiles. Membership includes highly acclaimed magazine, *The Vivarium*, dedicated to dissemination of information on herpetocultural accomplishments, herp medicine, breeding and maintenance, field studies and adventures, enclosure design and much more. AFH membership is $26. Send information requests to: AFH-News, P.O. Box 300067, Escondido CA 92030-0067.

For sale: rats and mice—pinkies, fuzzies and adults. Quantity discounts. Please send a SASE for pricelist or call Bill Brant, *THE GOURMET RODENT*, 6115 SW 137th Avenue, Archer FL 32618, (352) 495-9024, E-mail <GrmtRodent@aol.com>.

For sale: murine-pathogen-free rats and mice available in all sizes, live or frozen: pinkies, fuzzies, crawlers, small, medium and large. Frozen crawler mice in lots of 2000, $.17 each. Also available, full grown hairless mice. FOB shipping point. Master Card accepted. Call (518) 537-2000 between 8:00 A.M. and 5:00 P.M. or write SAS Corporation, 273 Hover Avenue, Germantown NY 12526 for prices and additional information.

For sale: high quality feeder mice. Shipped UPS Next Day Air. All mice are properly processed to insure a quality product. Fourth year of production and supply of frozen feeder mice. Prices: pinks, $25/100; fuzzies, $30/100; weanlings, $35/100. Also available are 4 oz.+ rats, $100/100. Quantity discounts available. The Mouse Factory, P.O. Box 85, Alpine TX 79831, (915) 837-7100, Ray Queen.

For sale: from Bayou Rodents, excellent quality feeder mice and rats. Every size available. Pinks starting at $20/100. Orders are shipped by overnight service Monday thru Thursday. We accept Visa, MasterCard and Discover. For more info, contact Rhonda or Peggy, (800) 722-6102.

For sale: **high quality frozen feeders**. Over a decade of production and supply. Seven sizes of mice availabe: small newborn pinks up to jumbo adults. Prices start at $25 per 100. Feeders are separate in the resealable bag, not frozen together. Low shipping rates. Free price list. Kelly Haller, 4236 SE 25th Street, Topeka KS 66605, (913) 234-3358 evenings and weekends.

For sale: In stock, Flex-watt and Ultra-therm heating products. **Frozen rodents** always available. Mice: pinks–crawlers, 3/$1; weanlings, 40¢; subadult, 50¢; adults, 65¢; large adults, 75¢. Rats: small, 85¢–$1; medium, $1.25–2.00; large, $2.25–2.75; jumbo, 3/$10. Call on quantity discounts [note: discount on orders picked up at CHS meetings]. Live rodents available at higher prices. **Available now**: newsletter/catalog—many unique/hard-to-find herp husbandry items. Send business-size SASE for catalog, or call. Scott J. Michaels, D.V.M, Serpent City, P.O. Box 657, Island Lake IL 60042, (815) 363-0290.

For sale: Herp bags—colors vary, translucent ripcord nylon, super lightweight, extremely durable construction with hot corners sewn in, double seamed. Custom sizes made upon request. Sizes: 46" × 14", $7 each; 24" × 12", $6 each; 24" × 6", $5 each. Shipping fees, $1 for first bag, $.30 each additional bag. Nicole Lechowicz, 290 Warren Road, #69, Carbondale IL 62901, (618) 457-2783.

For sale: *Smuggled* and *Smuggled-2* by Raymond Hoser - These are the books that have taken the herp community by storm. Send International Money Order for $50 Australian for both books made out to Kotabi Publishing, P.O. Box 599, Doncaster, Victoria, 3108, Australia. Or visit "banned websites" at <smuggled.com> for further information.

For sale: Desert Oasis Reptiles is reducing our inventory. The following highest quality captive-bred and long-term animals must go. These animals were not purchased to sell but to keep for future breeding projects! 36 **African spur-thighed tortoises** (*Geochelone sulcata*), c.b. 8/97, absolute gems, nice light blonde shell color, mother weighs 110 lbs., $50 each, call for quantity discounts; three male and three female adult **Warren's royal girdled lizards** (*Cordylus warreni regius*), w.c., long-term captives, proven breeders, males are black with yellow sides and bellies, $75 each or $425/group; three adult **Zimbabwe girdled lizards** (*Cordylus rhodesianus*), w.c., long-term captives, proven breeders, great little lizards, $30 each or $75/group; six **forest girdled lizards** (*Cordylus tropidosternum*), w.c., long-term, great breeding group, $20 each or $100/group; one male and one female **Mali uromastyx** (*Uromastyx acanthinurus* ssp.), 3-year captives, not fresh imports, vet checked, kept outside in sunny Arizona, male is a beefer, female should be ready to breed this year, $300/pair; **Australian snake-necked turtle** (*Chelodina longicollis*), captive born and raised, 6" gem, should be a female, $300; four **Peruvian matamatas** (*Chelus fimbriatus*), w.c., two-year captives, three are 4"+, never fed goldfish, eat from tweezers, great little turtles, $175 each; one male and one female **mid-Baja rosy boas, San Matias**, (*Lichanura trivirgata "myrialepis"*), c.b. '96, unrelated beauties, $350/pair; one male and one female **Mexican rosy boas** (*L. t. trivirgata*), c.b. adults, proven breeders, $250/pair; male **San Gabriel rosy boa**, (*L. t. gracia*), c.b. adult, ready to breed, $200; male **Joshua Tree rosy boa**, (*L. t. gracia*), c.b. '96, well started, $75; one male and one female **Whitewater rosy boas** (*L. t. gracia*), c.b. '96, well started, $150/pair; one male and one female **coastal rosy boas**, (*L. t. roseofusca*), San Diego County, c.b. '96, well started, $150/pair. We are wanting to sell the above animals but would also be interested in trading for select species of tortoises. Ask for Mike or leave a message, (520) 531-0215. [AZ]

For sale: '97 hatchlings—red-footed tortoises, $100 each, quantity discount; Hermann's tortoises, $125 each. Also, female rosy boa, c.b. '96, $75; male bearded dragon, '96 hatchling, $50; leopard gecko, '97 hatchling, $25. Linda C. Putnam, (918) 342-2159.

For sale: 6-year-old female leopard tortoise, c.b., A+ condition. Nancy, (815) 485-6642. [Mokena IL]

For sale: two male and two female Argentine tortoises, best offer; female Philippines sailfin lizard (*Hydrosaurus pustulosus*), long-term captive, $50; 5' female boa constrictor, c.b. '94, light coloration, excellent pattern characteristics—narrow saddles, 3 to 5 scales wide, minimal speckling, $150. Ed Stone, D.V.M., P.O. Box 55191, Madison WI 53705-8991, (608) 238-2891.

For sale: Aldabra tortoises, captive hatched yearlings, approx. 4", gems, inquire; pancake tortoises, inquire; young female Hermann's, $150 each; 3" female redfoots, $125 each; one male and one female 7" leopards, $150 each; one male and two female leopards, male 7", females 11", breeders, $150–250 each; one male and one female black-headed pythons ('95 male, '97 female), beauties, bright yellow with distinct banding, excellent feeders, inquire; ringed pythons from unrelated clutches, *discount* prices (price depends on number ordered), inquire; young Kenyan sand boas, nice orange/yellow with black, $35–45 each. Also, one male and one female Bolivian redtail boas (*amarali*), 6½–7', heavy-bodied, proven breeders, $2000/pair. Dick Goergen, P.O. Box 225, Alden NY 14004, (716) 681-4518 phone, or (716) 681-3544 fax.

For sale: c.b. hatchlings. Leopard geckos, $20; bearded dragons, $30–45 depending on age and quantity. Also some adult colubrids. Henry Cohen, 24 St. Johns Place, Buffalo NY 14201, (716) 881-6724.

For sale: c.b. geckos — Chinese leopard geckos (*Goniurosaurus* sp.), both forms available. Southern China, peach bands and purple skin, $150 each; northern Vietnam, yellow bands and large black spots, $120 each; one adult northern Vietnam pair available, nice, proven breeders, good colors and weight, $300/pair; web-footed geckos (*Palmatogecko rangei*), well-started babies, two bloodlines, three different patterns to choose from, $175 each; velvet geckos (*Oedura monilis*), high yellow phase, $75 each; New Caledonia gecko (*Rhacodactylus ciliatus*), from bright orange parents, $165 each; new, undescribed *Paroedura* sp., gets big, 6–7", nice colors and patterns, $75 each; ornate day geckos (*Phelsuma ornata*), $25 each. Philip Tremper, P.O. Box 264, Clintonville WI 54929, (715) 823-5873.

For sale: **c.b. *Uromastyx ornatus***. Healthy, beautiful babies born 8/15/97. Parents are long-term captives raised from juveniles. First generation from females. These lizards are rarely captive bred. $400 each. Serious inquiries only. See Audrey Vanderlinden at CHS meetings or call (773) 836-2477. Pager (773) 323-3462.

Advertisements (cont'd)

For sale: **c.b. "vittikins" bearded dragons and leopard geckos**, $30 and $25. Healthy, well started juveniles and subadults. See Audrey Vanderlinden at CHS meetings or call (773) 836-2477. Pager (773) 323-3462.

For sale: baby leopard geckos, c.b. '97 from exceptional yellow zoo-born parents, only a few left, $10; corn snakes, normal, c.b. '97, $10. All are feeding and in excellent health. All proceeds are being donated to promote the Lake Foerst Recreation Department's Wildlife Education Outreach Program. Rob Carmichael, (847) 615-4388, or E-mail at: <RCarmic416@aol.com>.

For sale: Breeder groups of the following: 1.2 bearded dragons, $350/group; 1.2, 1.2, 1.3, 1.3 fat-tail geckos, $65 each; 1.3, 1.4, 1.5, 1.6 leopard geckos, $65 each; 1.1 jeweled lacertas, $250/pair. Also, large adult Honduran milksnake, $200; three hatchling male Arizona mountain kings, $100; hatchling diamond/carpet crosses, $225. Bryan Elwood, (704) 665-7185, evenings. [NC]

For sale: from Hiss 'n' Things, Inc. Frilled dragons, 7/97, $300; Sandfire × red bearded dragons, $75 & up; lemon-yellow bearded dragons, $25 & up; coastal carpet pythons, $95; jungle carpet pythons, $300; Macklot's python, $100; "Blue Beauty" snake, $500/pair; trinket rats, $65; Okeetee corns, $25; Everglades rats, $20; white oak rat snake, $25; Deckert's rat, $45. Jim Kavney, (305) 664-2881. [FL] E-mail <Hissn1@aol.com>. Website: <www.hiss-n-things.com>.

For sale: one male and one female amethystine pythons, 5-year-olds, experienced handlers only, $350/pair; one 3-year-old Brazilian rainbow boa, $250; one subadult Borneo blood python; one Sinaloan milksnake; two kingsnakes; hatchling Jackson's chameleons. Tonya Maris, (630) 851-2331.

For sale: jungle carpet pythons, c.b. '97, $175 each; diamond carpet pythons, c.b. '97, $150 each; Queensland carpet pythons, c.b. '97, $125 each; *Rhacodactylus auriculatus*, c.b. '97, $225 each; one male Children's python, c.b. '96, $150; Macklot's pythons, c.b. '97, $85 each; fat-tail geckos, c.b. '97, (white lines and heteros), $35–40 each; Amazon tree boas, c.b. '96, gray phase, $150/pair; Amazon tree boas, c.b.'97, all colors, $75–300 each. Steven Bostwick, 3824 Lincoln Pl Drive, Des Moines IA 50312, (515) 274-4580.

For sale: captive-bred snakes and lizards. Species include: leopard geckos, rat snakes, king snakes, milksnakes, pine snakes, African house snakes, spotted pythons, Macklot's Pythons, Colombian boas, Brazilian rainbow boas, and surplus adults as research projects are completed. Feeder mice and rats also available. Call or fax (903) 693-3379 or E-mail <bobball.panola.cc.tx.us> for current prices. R. L. Ball, 226 N. St. Mary Street, Carthage TX 75633.

For sale: 6' female boa constrictor, proven breeder, $100. Jack Phillips, (847) 724-4552.

For sale: **Adult proven breeders!** northwestern carpet pythons, c.b. '92, unrelated, black & gold phase, average clutch 20 eggs, $700/pair; Children's pythons, c.b. '93, unrelated, red desert phase, average clutch 14 eggs, $550/pair; Hog Island boas, c.b. '92, nice light colors, average litter 15 young, $850/pair. All prices are negotiable. Many baby boas and pythons available. Contact for free list. Jerry Conway, J. C. Reptiles, 7154 N. University Drive, #102, Tamarac FL 33321, (954) 722-8758.

For sale: one male and two female Borneo blood pythons, young adult breeders, each female has produced one clutch of perfect eggs, one female is extra nice (Barker bloodline), $700/trio; jungle carpet pythons, beautiful yellow on velvet black, babies and adults available; San Mateus rosy boas, just born, extra nice; northern bluetongue skink (*intermedia*), c.b. '97, just one left. Bill Montgomery, P.O. Box 656, Elgin TX 78621, (512) 285-5520 days, (512) 285-9631 evenings, or E-mail <Tiliqua@aol.com>.

For sale: Brazilian rainbow boas, c.b. '97, from Gary Lorio "terra cotta" stock, high contrast, feeding well, $225 each; tangerine Honduran milksnakes, c.h. '97, feeding well, $70 each. Ed or Sue, (607) 264-3441, 6–10 P.M. [NY]

For sale: four litters (19 total) Bay of L.A. rosy boas, *Lichanura trivirgata saslowi*, $75 each, make offer for whole group; one litter (6) Whitewater rosy boas, *L. t. myriolepis*, $75 each, make offer for whole group; six California kingsnakes, *Lampropeltis getula californiae*, desert phase, 1997 newborns, $25 each, make offer for whole group. Extra Dumeril's ground boas, *Acrantophis dumerili*, $200–250 each; Kenyan sand boas, $40–100 each. Giovanni and Paula Fagioli, 32514 NE 77th, Carnation WA 98014, (425) 861-7964 phone, (425) 333-4205 fax, E-mail <beanfarm@accessone.com>.

For sale: **Peruvian rainbow and red-tail boas**. These are the real thing! Arco Iris Herpetoculture is pleased to offer the first and only legally exported Peruvian Amazon Boidae in 20 years. Captive bred and born in Peru at the only in-country boa breeding facility in the world! **These are not from wild bred females**. For details and a 1997 price list, call Terry L. Vandeventer, Arco Iris Herpetoculture, (601) 371-7414 telephone, (601) 371-3271 fax, or E-mail <franz@teclink.net>. PLEASE NOTE THESE NEW NUMBERS.

For sale: yellow anacondas, flawless captive born babies from high contrast, docile adults, yellow with black spots, $150 each; carpet pythons, captive born babies from huge, vividly colored parents (Brian Barczyk bloodline), some of the nicest carpets you'll see, only a few left, $125 each. Mark Petros/ Strictly Serpents, (847) 854-3259 home, or (847) 854-2992 work.

For sale: 1-year-old variable kingsnakes (*Lampropeltis getula "goini"*), $25 each; hatchling veiled chameleons, $35 each or $50/pair, quantity discounts. Al Winstel, 2651 Cornwall Drive, Cincinnati OH 45231, (513) 729-2563.

For sale: Premium captive-produced reptiles. **Piebald black pines**; Brazilian rainbow boas (Lamar); blonde trans-Pecos rat snakes; Baja rat snakes; gray-banded kingsnakes (Langtry); Okeetee corns; Tennessee corns (rare locality); ghost corns; melanistic garters (unusual form of melanism—male is solid black with three blue stripes and a powder-blue chin); Peruvian matamatas; Mexican redleg tarantulas. Call for free price list or just to shoot the bull. Private breeder Michael Stefani, (630) 372-3936.

For sale: one male and one female Baja mountain kingsnakes (*Lampropeltis zonata agalma*), c.b. '97, reduced black, $450/pair; one male and one female south Florida kingsnakes (*L. getula "brooksi"*), c.b. '95, high yellow, $400/pair; one male and one female Arizona mtn. kingsnakes (*L. p. pyromelana*), c.b. '97, $200/pair; one male hetero/hypomelanistic Honduran milksnake, c.b. '97, $875. Gary Gaziano, Castro Valley CA, (510) 583-0313 evenings.

For sale: beautiful, feeding snakes. Wholesale quantities to dealers, individual purchases welcome. Send SASE for **free** price list. Robert Applegate, P.O. Box 338, Campo CA 91906, (619) 478-5123. Also, free phone consultation on snake husbandry problems as a service to the herp community.

For sale: Send SASE to CRC, P.O. Box 0731, Las Vegas NV 89125-0731 for brochures and list of species available. Limited bookings available for guided tours of herpetological collection sites in Nevada. Call/fax (702) 471-0240. E-mail <fpglwmau@anv.net>.

Free: glass tank, custom made, 5' × 2' × 2', great condition, must pick up. Rob, (847) 615-4388. [Mundelein IL]

Room to let: on 3rd floor of my home. Low rent for nonsmoker who will do paid herptile, plant and house sitting. Evanston, near public transportation. (847) 864-5513.

Software: **TRACS**™ (the BEST SELLING record keeping and breeding program for IBM and compatibles). Quickly retrieve data such as breeding history, feeding schedules and medical records on each of your animals and use the information to improve your husbandry techniques. Just $39.95 plus $5 s&h, $10 outside the U.S. Download free demo at <http://www.leaplizard.com>. Send check, money order or credit card information to Leapin' Lizards, 23852 Pacific Coast Highway, #375, Malibu CA 90265 or call at (310) 456-3266.

Advertisements (cont'd)

Tours: Adventure tours to Madagascar! Join **Bill Love** seeing and photographing fauna and flora, heavily herp-biased, across the world's least known mini-continent. Maximum fun & photo ops assured on every trip. Contact him at: BLUE CHAMELEON VENTURES, P.O. Box 643, Alva FL 33920. TEL: (941) 728-2390, FAX: (941) 728-3276, E-MAIL: <blove@cyberstreet.com>.

Tours: **Road-riding in Costa Rica!** Treat yourself to the trip of a lifetime! Learn about tropical herps, find them, photograph them, see where they live. **Greentracks, Inc.**, offers the best herpetological tours led by internationally acclaimed herpetologists and herpetoculturists. See the Amazon, visit cloud forests, experience the world's greatest rainforest, super sunsets and good company. Call (800) 9-MONKEY.

Wanted: pet and plant sitter for when we travel. Evanston area. (847) 864-5513.

Wanted: legal adult wood and spotted turtles to increase my breeding colony. Ron Winfrey, (616) 363-9276. [Grand Rapids MI]

Wanted: tortoises. Chaco/Argentine, *Geochelone chilensis*, and Egyptian, *Testudo kleinmanni*. Colin, (773) 784-8968.

Wanted: *Corallus* and *Candoia*. Jerry Conway, J. C. Reptiles, 7154 N. University Drive, #102, Tamarac FL 33321, (954) 722-8758.

Wanted: fox snake, (*Elaphe v. vulpina*), eastern milksnake (*L. t. triangulum*), red milksnake (*L. t. syspila*). Juveniles, young adults or adults preferred but will be interested in hatchlings as well. Will be used for the Wildlife Education Outreach Program at the Lake Forest Recreation Department. Rob Carmichael, (847) 615-4388, or E-mail at: <RCarmic416@aol.com>

Wanted: fox snakes for nature center display. Must be gorgeous and flawless, with orange heads and clear yellow ground color, eastern or western; large male Hermann's tortoises for purchase or loan (have three gorgeous females, 8–10"); jeweled lacertas, European only. Ed Stone, D.V.M., P.O. Box 55191, Madison WI 53705-8991, (608) 238-2891.

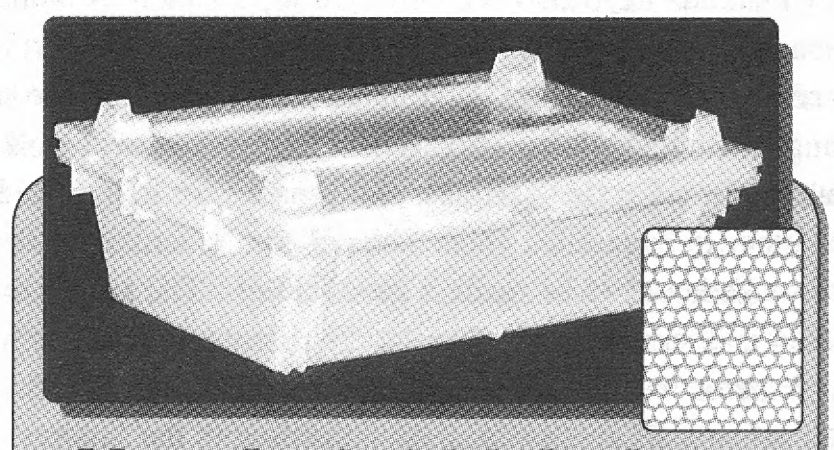
Wanted: big-headed turtles; mata mata turtles; Mexican giant mud turtles (*Staurotypus triporcatus*); exceptionally large common snappers (45 lbs. & up); large alligator snappers (over 90 lbs.); spectacled caiman from Trinidad, Tobago and Surinam; dwarf caiman; smooth-fronted caiman; albino turtles (except red-eared sliders). Walt Loose, (610) 926-6028, 9:00 A.M. – 1:00 P.M. or after 11:30 P.M. Eastern Time.

Wanted: Styrofoam boxes, any size or shape so long as they're not flimsy, preferably with cardboard liners, willing to pay from $2 to $5. Bring to CHS meetings. Scott J. Michaels, D.V.M, Serpent City, (815) 363-0290.

Line ads in this publication are run free for CHS members — $2 per line for nonmembers. Any ad may be refused at the discretion of the Editor. Submit ads to: Michael Dloogatch, 6048 N. Lawndale Avenue, Chicago IL 60659, (773) 588-0728 evening telephone, (312) 782-2868 fax, E-mail <MADadder0@aol.com>.

Health Food for your herps!

Highest quality rodents are available in all sizes from pink mice to jumbo rats. Fresh frozen crawler mice are only 17¢ each in lots of 2,000. All frozen animals are shipped in insulated boxes.



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UPCOMING MEETINGS

The next meeting of the Chicago Herpetological Society will be held at 7:30 P.M., Wednesday, October 29, at the Field Museum of Natural History, Roosevelt Road at Lake Shore Drive, in Chicago. Randall Gray, who was advertised as this month's speaker, will not be able to make it because of a conflict in his schedule. Randy will speak at a CHS meeting sometime next spring. As of this writing, a replacement has yet to be found, but Vice-president Jack Schoenfelder is on the job and promises to provide us with a quality program.

At the November 26 meeting **Robert Henderson** of the Milwaukee Public Museum and our own **John Murphy** will speak on the topic of "Giant Snakes." John and Bob are co-authors of the newly released *Tales of Giant Snakes: A Natural History of Anacondas and Pythons*. There will be copies of the book for sale at the meeting, and afterwards both authors will be available for a book-signing. At this meeting our annual election of officers will also take place.

We are required to use the entrance on the west side of the museum. **Last month again we were allowed to use the free parking lot to the west of the museum. Your best bet is to try that lot first before settling for the lot to the east of the museum or for the Soldier Field lot, where you may have to pay for parking. For the latest on the parking situation call our CHS message line, (773) 281-1800, before you come.** Public transportation is an option: the Roosevelt Road (12th Street) bus now goes directly to the museum, thus providing a connection with the el and subway. This bus service runs until 11 P.M.

Turtle Club

The Chicago Turtle Club will meet Sunday, October 26, 1:00–3:30 P.M., at the North Park Village Nature Center, 5801 N. Pulaski, in Chicago.

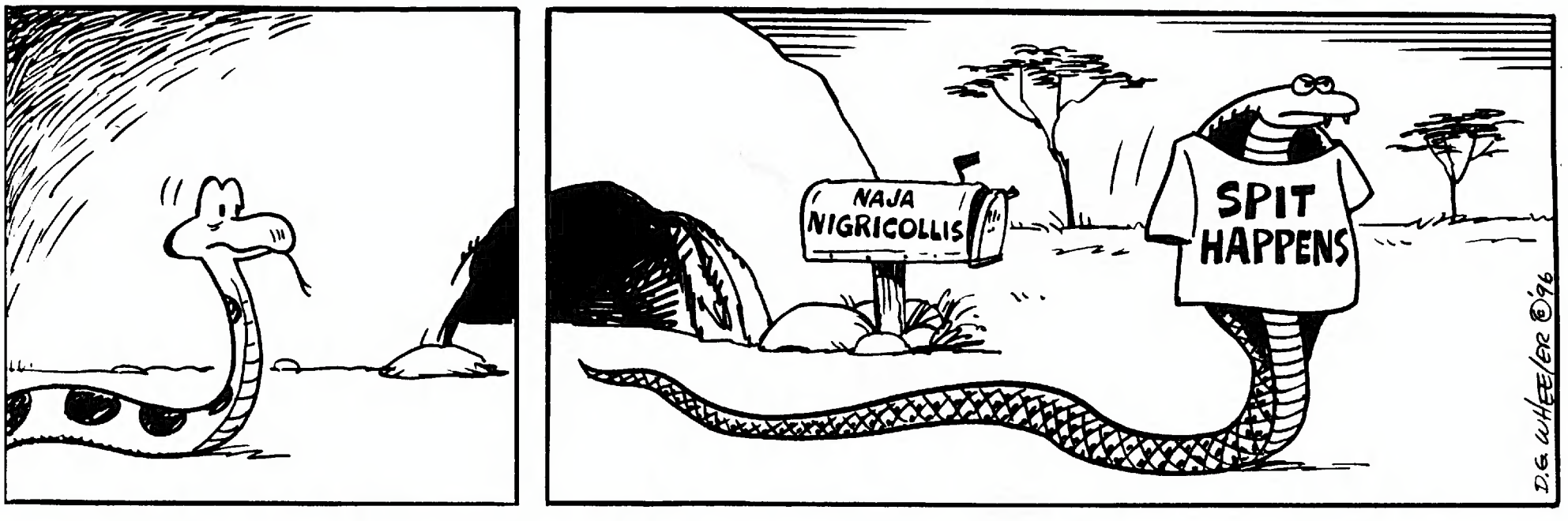
MOVING??

Please let us know in plenty of time of any change in your mailing address. The *Bulletin of the Chicago Herpetological Society* is sent to our U.S. members by bulk-rate third class mail. This means that the U.S. Post Office will not forward your *Bulletin* with the rest of your mail. This is so even if you make a special request that your magazines be forwarded (such a request only applies to second class mail).

CONTEMPORARY HERPETOLOGY, A NEW ELECTRONIC JOURNAL

On January 1, 1998, *Contemporary Herpetology* (CH), a peer-reviewed electronic journal devoted to herpetology, will go on-line <http://vmsweb.selu.edu/~pscd4805/> with the following articles: "A Key to the Anuran Larvae of the United States and Canada" by Ronald Altig and Roy W. McDiarmid; "Taxonomic Status of the Wyoming Toad" by Hobart M. Smith, David Chiszar and Joseph T. Collins. CH is currently soliciting papers, which can be submitted to managing editor Travis Taggart via E-mail <ttagart@selu.edu>. CH will publish articles covering all aspects of herpetology, including ecology, ethology, systematics, conservation biology and physiology. CH will also publish monographs, points-of-view and faunistic surveys of poorly known areas. CH will not publish herpetocultural or anecdotal papers. Internet technology provides publication capabilities that were either impossible or expensive in previous media, including full-motion video, full-color digital photography, computer simulations and audio playback. For questions about CH, contact the editor Joe Slowinski <jslowins@calacademy.org>, (415) 750-7041.

THE ADVENTURES OF SPOT



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